

Claims

I claim:

1. An apparatus to filter ultraviolet, visible and near-infrared radiation emitted from natural or artificial sources, comprising:

a transparent solid substrate and the synthetic lens pigment of the crystalline lens, derived from a molecular precursor to the pigment of the crystalline lens, and uniformly dispersed in said solid substrate.

2. An apparatus to filter ultraviolet, visible and near-infrared radiation emitted from natural or artificial sources, comprising:

a transparent solid substrate and the synthetic lens pigment of the crystalline lens, derived from 3-hydroxy-kynurenine, uniformly dispersed in said solid substrate.

3. An apparatus to filter ultraviolet, visible and near-infrared radiation emitted from natural or artificial sources, comprising:

a transparent solid plastic substrate and the synthetic lens pigment of the crystalline lens derived from 3-hydroxy-kynurenine.

4. An apparatus according to claim 1, or to claim 2, in which the transparent solid substrate is plastic.

5. An apparatus according to claim 1, or claim 2, in which the transparent solid substrate is formed by the polymerization of a monomer in a thermoset process.

6. An apparatus according to claim 1, or claim 2, in which the transparent solid substrate is formed by the compounding or extrusion of a thermoplastic
7. An apparatus according to claims 1, or 2, or 3, or 4, or 5 or 6, wherein the synthetic lens pigment of the crystalline lens derived from 3-hydroxy-kynurenine is chemically modified by derivatization in order to achieve dispersion and solubility of the pigment in the transparent solid plastic substrate or coating.
8. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is an ophthalmic device.
9. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is a sunglass lens.
10. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is a sunglass lens in combination with a polarizer film.
11. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is a sunglass lens in combination with a photochromic dye.
12. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is a hard or hydrophobic contact lens.
13. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is an intraocular device.
14. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is a packaging device.

15. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is a plastic film.
16. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is a window.
17. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, wherein the apparatus is an umbrella.
18. An apparatus according to claims 1, or 2, or 3, or 4, or 5, or 6, or 7, wherein the apparatus is a canopy.
19. An apparatus according to claim 1, or to claim 2 in which the solid substrate is a coating that can be applied to a second, clear solid substrate.